BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Foundation Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Extended Diploma in Construction and the Built Environment Pearson BTEC International Level 3 Diploma in Building Services Engineering Pearson BTEC International Level 3 Extended Diploma in Building Services Engineering
Unit number and title	Unit 9: Building Information Modelling and Artificial Intelligence
Learning aim(s)	A: Examine the use of a Digital Plan of Work in an information management environment B: Examine the construction information management environment C: Investigate the contribution of information management technologies to a BIM-enabled design and construct project D: Investigate the effect of policy, standards and legislation on the BIM-enabled environment
Assignment title	Working on a BIM-enabled design and construction project.
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You have been assigned as an Assistant BIM Co-ordinator to support the BIM Manager on a project delivering a new secondary school. You will be working as part a project team (refer to Figure 1 below for the project team structure) responsible for the design, construction and ongoing maintenance of the educational facility.

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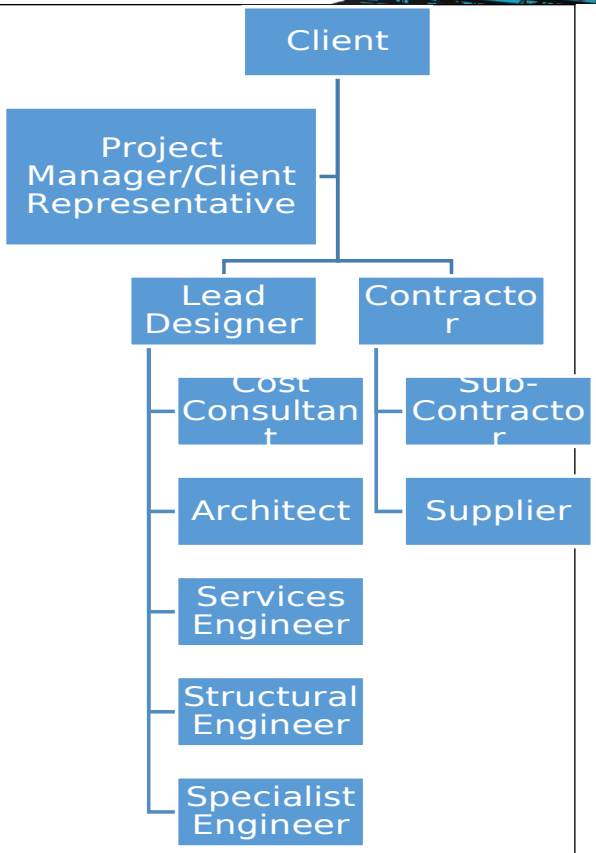

Figure 1: The Structure of the Project Team

The school is located on the outskirts of a small town and will accommodate 600 students between the ages of 11 and 16. The school is to provide a number of facilities including:

- Ten standard teaching rooms, with thirty desk spaces and a smart board.
- A library providing space for books, periodicals and an integrated audio-visual suite with internet facilities.
- Two science laboratories equipped for the delivery of physics, chemistry and biology.
- Two IT laboratories with computers for thirty students and an equipment loans facility for iPad, cameras and other multimedia equipment.
- A multi-purpose hall for school assemblies, events, productions and minor games.
- A sports facility including indoor sports, badminton and basketball provision, cricket nets, tennis courts and a standard football pitch.
- An art room including gallery space.
- A music room equipped with a variety of instruments including guitars, and drum sets.

	• A cafeteria • A store room • A plant room • A school-nurse's room equipped with bed, medicine store and computer/filing equipment • Three offices for school administrators • An office for the head teacher • Four offices for the head of subject in maths, science, humanities and sport • A staff room • A cloakroom equipped with lockers for students and coat hooks. The project is to be completed to a tight timescale of 54 weeks and constructed within a budget of £15 million pounds. The UK Department of Education are the client for the project.
Task 1	You have been asked to support the initial planning of the school project. You are required to: (a) prepare a flow chart to illustrate the key work stages of the project. On the flow chart you are required to annotate the information requirements which will be included in the Digital Plan of Work (DPoW) at each stage of the project. For each information requirement you should describe: (i) the level of information needed. (ii) the project team member responsible for the delivery of the information. (iii) the tasks required to deliver the required information. The project information requirements will be housed in a Common Data Environment (CDE). Your manager has also requested that you prepare report for the project team: (b) Evaluating options for the CDE and explain the CDE application in the completion of the DPoW for the school project.
Checklist of evidence required	Production of a thoroughly annotated flow chart describing the key work stages and information requirements for the DPoW. A short report that evaluates the options for the CDE and thoroughly explains the CDE application in the completion of the DPoW for the school project.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
9/A.D1	Evaluate the application of the DPoW and CDE in a BIM-enabled design

	and construct project.
9/A.M1	Analyse the application of the DPoW and CDE in a BIM-enabled design and construct project.
9/A.P2	Describe how the CDE supports a BIM-enabled design and construct project.
9/A.P1	Describe the application of the DPoW stages in a BIM-enabled design and construct project.

Task 2	Your manager has confirmed that as the school project is state funded, the project must be delivered using BIM. You have been asked to prepare a presentation for the project team evaluating how CoBie and BIM deployment strategies will support the delivery of the project. The presentation will cover the contribution of: (i) CoBie and BIM deployment strategies for the delivery and transfer of school asset data during the project. (ii) BIM to obtain the required statutory approvals such as planning permission. (iii) BIM to support sustainable practices for the design, construction, operation and maintenance of the school. (iv) 3D BIM environment and AI to design and plan the construction of the school and manufacture components. You should illustrate your presentation with some examples of typical CoBie formatted data set for a selected school asset.
Checklist of evidence required	Production of a presentation using computer software
Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
9/BC.D2	Evaluate the contribution of information management technologies, COBie and BIM deployment strategies for a design and construction project.
9/C.M3	Explain the contribution of BIM for a specific design and construct project.
9/B.M2	Explain the contribution of COBie and BIM deployment strategies to support the secure flow of information for a design and construct project.
9/C.P4	Describe the contribution of BIM use to sustainability for a specific design and construct project.
9/C.P5	Describe the contribution of BIM use to gain statutory control for a specific design and construct project.
9/C.P6	Describe the contribution of the 3D BIM environment and AI to modern methods of construction use for a specific design and construct project
9/B.P3	Outline the contribution of CoBie and BIM deployment strategies to support the secure flow of information for a design and construct project.

Task 3	To support the understanding of BIM by the project team, for the delivery of the school project you have been asked to prepare report This report should include: (i) an organogram of the project roles arising from the BIM-enabled school project, clearly annotated with team member responsibilities (ii) explain the resources required to support the BIM-enabled project (iii) provide an introductory evaluation of the effect of government BIM policies and legislation on the school project. This introductory evaluation should include comments on the effect on construction industry and profession.
Checklist of evidence required	A report supported with a fully annotated BIM-enabled project roles organogram.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
9/D.D3	Evaluate the effect of industry, professional and government policies and legislation on construction activities, roles and resources for a given BIM-enabled design and construct project.
9/D.M4	Discuss the effect of industry, professional and government policies and legislation on construction activities, roles and resources for a given BIM-enabled design and construction project.
9/D.P7	Outline the effect of the industry, professional and government policies, and legislation on construction activities for a given BIM-enabled design and construct project.
9/D.P8	Outline the allocation of roles and resources for a given BIM-enabled design and construct project.

Sources of information to support you with this Assignment	Pearson BTEC National Construction Student Book Authors: Simon Topliss, Mike Hurst, Simon Cummings. Sohrab Donyavi Further useful resources may be found at: https://toolkit.thenbs.com/ https://www.ice.org.uk/careers-and-training/return-to-a-career-in-civil-engineering/which-civil-engineering-role-is-right-for-you/career-profile-bim-manager http://constructingexcellence.org.uk/digital/bim-case-studies/